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July 12, 2010

**Via Electronic and U.S. Mail**

Mr. David Hockey  
USEPA Headquarters  
Ariel Rios Building  
1200 Pennsylvania Avenue, N. W.  
Mail Code: 5303P  
Washington, DC 20460

**Re: National Grid – Alternative PCB Characterization Protocol**

Dear Mr. Hockey:

I write on behalf of National Grid to request a variance for discrete, well defined portions of National Grid's natural gas distribution system from the PCB characterization procedures set forth at 40 C.F.R. § 761.60(b)(5)(iii). As described below and in the attached protocol, National Grid has developed an alternative PCB characterization procedure that, for well defined portions of its system, will allow the Company to accurately and cost-effectively characterize the pipe as "PCB-Contaminated" so that it can be properly abandoned in place in accordance with the capping procedures set forth at 40 C.F.R. 761.60(b)(5)(i)((B) for PCB-Contaminated pipe (*i.e.*, pipe containing  $\geq 50$  parts per million (ppm) and  $< 500$  ppm PCBs).

The applicable regulations currently specify that, to employ this particular abandonment option, the owner/operator must characterize the pipe as being PCB-Contaminated "by analyzing organic liquids collected at existing condensate collection points in the natural gas pipeline system. The level of PCB contamination found at a collection point is assumed to extend to the next collection point downstream." *Id.* at § 761.60(b)(5)(iii). "If no organic liquids are present, free-flowing liquids are to be drained and standard wipe samples collected according to subpart M of this part." *Id.*

For these reasons set forth below, National Grid requests that it be authorized to employ an alternative PCB characterization process for discrete portions of its pipeline system in lieu of the characterization procedures set forth in 40 C.F.R. § 761.60(b)(5)(iii), provided the procedures in this variance request are adhered to.

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### **Summary of Variance Request**

National Grid requests that, in the circumstances described below, it be authorized to characterize certain segments of its pipeline as PCB-Contaminated (*i.e.*, containing  $\geq 50$  ppm PCBs and  $< 500$  ppm PCBs) and to abandon such segments in place pursuant to the capping procedures for PCB-Contaminated pipe set forth at 40 C.F.R. § 761.60(b)(5)(i)(B). This alternative characterization consists of the following steps, which are more fully described in the attached protocol:

1. National Grid would first identify and define a candidate portion of the National Grid system upon which the characterization protocol could be used. A valid candidate portion will be either (1) isolated from the rest of the system, (2) a community with a single source of gas supply through a town border/regulator station, or (3) a geographic zone of influence that is clearly defined by its supply and/or historic flow patterns associated with a defined geographic area.
2. National Grid would then determine if it possesses any pipeline condensate sample results (or results from the organic phase of an oil/water mixture) for the past year at any location along the candidate portion of the pipeline. If so, and if either of the two most recent liquid samples collected at least 6 months apart from the same or nearby location in the system tested at or above 500 ppm PCB, then the subsystem downstream will be excluded as a candidate for abandonment in place under this variance protocol.
3. If insufficient liquid samples have been collected, (*i.e.*, there are not two liquid samples at least 6 months apart in a given location), National Grid will use wipe samples to characterize the candidate portion of the pipeline. A representative number of samples will be taken from the point of origin of gas flow into this pipeline portion, throughout intermediate points within the system and at the geographic boundaries of the system in question.

Based on the number of samples obtained, the following equation would be used to determine the number of wipe samples which may exceed the specified action level and still allow the defined section of pipeline to be considered eligible for characterization as PCB-Contaminated for purposes of employing the cap-in-place-abandonment option.



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$$Y = 289 + 171.5x - 4.25x^2$$

Where:

Y = the number of samples collected and

X = the number of sample results at or below the specified action level necessary to consider the system PCB-Contaminated.

The following table shows how this formula will be implemented:

Permitted number of samples above the action level	
> Y Samples Collected	<= X Samples Above Action Level
289	0
456	1
615	2
765	3
907	4
1040	5
1165	6
1281	7
1389	8
1488	9
1578	10

4. If a geographic region cannot be determined to be PCB-Contaminated based solely on the abovementioned assessment analysis, the following additional assessment criteria will be used to determine if a subset of the candidate portion of the system can be identified as PCB-contaminated
- Delineation of subsystems based on operating pressure;
  - Delineation of subsystems based on material of construction (steel, cast iron, plastic);
  - Contamination relative to pressure reduction facilities (HP/LP connections, regulator stations);
  - Contamination relative to any historical liquid collection facilities;
  - Water from low pressure systems; and,
  - Components not in contact with the flowing gas stream.

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In addition, analytical results from other liquids collected during pipe maintenance/repair can be useful when characterizing a candidate system, although organic liquids and wipe samples in direct gas contact would be the primary determinants for characterization. For example, water and multiphase water/hydrocarbon liquids collected from other system components not in direct contact with the gas stream, such as in drip pots, drip logs, and valve bodies, can also help to understand the candidate system's PCB history and potential for recontamination.

5. Where the preponderance of information indicates there is reasonable assurance the defined portion of the natural gas piping system meets the criteria, the system or portion of the system may be characterized as PCB-Contaminated. Documentation supporting the characterization will be assembled, a National Grid characterization committee will perform a technical review of the collected support data and the results of the characterization, and the completed characterization documentation will be presented to a National Grid Environmental Director and Director of Gas Network Strategy for review and approval.

#### **Basis for Variance Request**

*are they cherry picking?*

Prior to preparing this variance request, National Grid has already taken important steps to remove PCBs from the portions of pipeline that would be the subject of the alternative characterization protocol. For any element of the pipeline that would be subject to the alternative characterization protocol, National Grid, in accordance with the use conditions in 40 C.F.R. 761.30(i), would have removed or decontaminated any identified PCB "sources" from the pipeline component to be characterized for purposes of abandonment. In short, any defined, discrete section of its pipeline system that National Grid identifies for characterization using the alternative protocol will have been effectively pre-screened as extremely unlikely to contain elevated levels of PCBs (*i.e.*, > 500 ppm) and thus ineligible for abandonment as PCB-Contaminated.

National Grid will refine selection of the portions of its pipeline system as candidates for the alternative characterization protocol through its historical knowledge of its system. The Company's collective PCB knowledge dates back to EPA's inception of the PCB Compliance Monitoring Program (CMP), which was successfully utilized by EPA and the affected natural gas pipeline systems between 1981 and 1998 (prior to adoption of the disposal/abandonment provisions for PCBs in natural gas pipeline at §761.60(b)(5)) to address and manage the presence of PCBs in transmission and natural gas pipeline systems. As EPA acknowledged in its 1996



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revisions to the 1981 CMP (see <http://www.epa.gov/waste/hazard/tsd/pcbs/pubs/cmp96.pdf>), "after 15 years of sampling, the CMP companies know where the PCB contamination problems are." *Id.* at pp. 4-5. National Grid has amassed another 15 years of knowledge since that time.

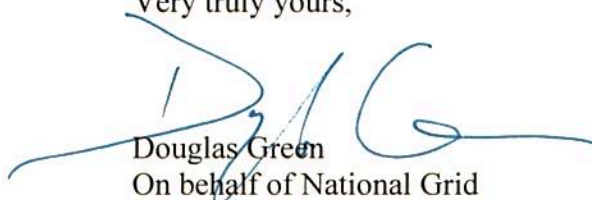
Without this alternative protocol, National Grid, would as a practical matter, be unable to employ this effective regulatory abandonment option for PCB-Contaminated pipe. As explained in the 2006 variance approval that National Grid obtained from EPA authorizing it to use wipe sampling where organic liquids are not available to characterize its pipeline, National Grid's Pipeline is often dry, limiting the number of organic liquid samples that can be readily obtained from its drip pots. As a result of the dry characteristics of its pipeline system, compliance with the PCB characteristic methodology in § 761.60(b)(5)(iii) for abandoned pipe would be extraordinarily time-consuming and resource-intensive.

As a practical matter, characterization of such dry systems under EPA's characterization process would require extensive, disruptive excavation (on public and private properties) and disassembly (and reassembly) in order to conduct wipe testing at every drip pot location where liquid samples are unavailable. As EPA is aware, those locations are extremely numerous. National Grid respectfully suggests that the public and private costs and resources associated with such an approach are unnecessary for the discrete, well defined portions of National Grid's system where the alternative sampling methodology would provide equally reliable characterization results.

The characterization of the qualifying, select portions of National Grid's pipeline system under the requested characterization protocol will provide a practical, reliable and cost-effective means for confirming that the selected pipeline components only contain PCBs at concentrations  $\geq 50$  and  $< 500$  ppm, and are eligible for abandonment in place under the cap-in-place option.

National Grid would like to meet with EPA to discuss the requested variance. We look forward to hearing from you with regard to this variance request.

Very truly yours,



Douglas Green  
On behalf of National Grid

Attachment

# **NATIONAL GRID**

## **ALTERNATIVE PCB CHARACTERIZATION PROTOCOL**

### **1.0 PURPOSE**

This procedure describes an alternate method for the PCB characterization of a defined portion of National Grid's natural gas piping. The term "characterization" as used here refers to establishing PCB levels for a geographic area of influence, based on historical flow patterns and analytical data.

This characterization methodology is the final portion of the process National Grid will utilize in order to ensure that abandoned pipe contains PCBs at concentrations below 500 parts per million (ppm). National Grid has already initiated portions of the process related to source removal prior to utilization of this methodology. As described in Attachment 3 (PCB Source Identification), the first prerequisite for source removal is the decontaminating all sources containing  $\geq 50$  ppm PCB. The second prerequisite for source removal is ensuring that the source cannot introduce PCBs into the downstream pipeline system. National Grid has already initiated these procedures at areas that are potential candidates for this alternative sampling methodology; it will continue to do so prior to implementation of this characterization protocol.

### **2.0 DATA REQUIREMENTS FOR CHARACTERIZATION** - In order to characterize a system using this alternative methodology, certain data must be collected and evaluated. These data include the following.

#### **2.1 Organic Liquid Data**

National Grid has compiled an inventory of preexisting data from samples of organic liquid in its pipelines. To support a characterization analysis, this available liquid data will be collected, sorted chronologically, and grouped. Groups will be established for the most recent 12 months, the previous 5 years, and any data 5 years and older. Supporting documentation (lab reports, etc.) will be used to confirm that the samples which generated this data were in fact organic liquid and to allow for data validation.

#### **2.2 Other Liquid Data**

While organic liquid samples are required for characterization, other liquid samples (particularly water from low pressure systems) can provide useful information if a light hydrocarbon sheen is recoverable from within the aqueous phase of those samples. Thus, for this procedure, PCB results from such an extracted organic phase will be collected and sorted chronologically. However, water sample data alone for PCB is not an acceptable substitute for organic liquid or wipe sample data, because the solubility of PCB in water is extremely low. Therefore, if no organic phase is recoverable, any water samples will be disregarded.



### **2.3 Wipe Sample Data**

Wipe sample data is collected during the course of many pipeline abandonment, decontamination, and removal/disposal projects. In order to use these data for system characterization and system characterization decisions, National Grid applied for, and in April 20, 2006 received, approval from EPA (Attachment 8) to use wipe sample data to characterize the natural gas system in geographic zones of influence where organic liquid samples are not available. In the absence of liquid samples, wipe samples will be used to confirm or refute the presence of PCBs.

### **2.4 Gas Supplier**

National Grid receives natural gas from several different transmission pipelines, delivering gas to different areas of their distribution system. Some pipelines have little or no history of PCB contamination in their system and are therefore less likely to have contributed PCBs to certain parts of the National Grid system. Other pipelines are known to have used or been contaminated with PCB, and are more likely to have contributed PCBs to National Grid. Assessment of pipeline PCB history may also be used to assist in characterizing a system.

## **3.0 PROCEDURE**

To characterize a portion of the natural gas distribution system, National Grid will follow the process outlined in the attached "PCB Characterization Evaluation Decision Flow Chart" (Attachment 1) and will complete the associated information forms (Attachments 2 – 7).

### **3.1 System Delineation (Attachment 2)**

First, the candidate portion of the National Grid system will be fully described and defined using gas flow zones of influence. A valid candidate system delineation may consist of a portion of the National Grid system that is either (1) isolated from the rest of the system, (2) a community with a single source of gas supply through a town border/regulator station, or (3) a geographic zone of influence that is clearly defined by its supply and/or historic flow patterns associated with a defined geographic area.

### **3.2 Transmission Pipeline Information (Attachment 4)**

Gas transmission pipelines serving National Grid will be identified and the available PCB management history assessed to aid in assessing whether PCBs might be present in a geographic zone of influence.

This history may include:

- Participation in the EPA CMP, including quarterly PCB test data for the most recent 5 years of testing, and their status when the program was ended in 1998;
- Any PCB data used to exclude the company from the CMP, regardless of date;
- Information regarding historical liquid collection volumes in the vicinity of any National Grid custody transfer point, including PCB levels if known; and,
- Any anticipated changes in gas supply or gas quality resulting from system reconfiguration or changes in source of supply.

### **3.3 Organic Liquid Sample Results (Attachment 5)**

As described in Sections 2.1 and 2.2, pipeline condensate sample results (or results from the organic phase of an oil/water mixture) will be first sorted chronologically, since the last two organic liquid samples collected at least 6 months apart at a given location are the most important decision points to characterization. If either of the two most recent liquid samples from the same or nearby location in the system tested above 500 ppm PCB, then the subsystem downstream will be excluded as a candidate for abandonment in place by the cap-in-place method.

### **3.4 Wipe Samples (Attachment 6)**

If insufficient liquid samples have been collected (*i.e.*, there are not two liquid samples at least 6 months apart in a given location), wipe samples will be used. Wipe samples will be taken to ensure the candidate system is well defined relative to gas flow characteristics in defined geographic boundaries. A representative number of samples will be taken from the point of origin of gas flow into the above-mentioned system, throughout intermediate points within the system and at the geographic boundaries of the system in question.

Once the candidate system or geographic zone has been defined and the wipe sample results collected into a corresponding database, the data will be analyzed to determine if they are adequate to support characterization. If not, additional samples will be collected. Once an adequate number of samples are collected, the analysis will follow the matrix presented in Table 1, differing based on the results of the review described in Sections 3.1 through 3.3, for systems that are presumed to be above the action level and those that are not.. Those presumed to be below the action level are excluded from the PCB regulations and will not be analyzed further. Where multiple samples are obtained from the same location, the average of the sample results will be assigned to each sample.



**Table 1<sup>1</sup>**

<b>System Assumed to be &gt; Action Level</b> based on the results of the review described in Sections 4.1 through 4.4	
<b>&gt; Y Samples Collected</b>	<b>&lt;= X Samples Above Action Level</b>
289	0
456	1
615	2
765	3
907	4
1040	5
1165	6
1281	7
1389	8
1488	9
1578	10

### **3.5 Evaluation of Information**

If a geographic region is determined to exhibit contamination based on the above mentioned assessment analysis, the following additional assessment criteria will be used to determine if a subset of the candidate portion of the system can be identified as not contaminated:

#### **3.5.1 Delineation of subsystems based on operating pressure:**

Certain portions of the candidate system may operate under different pressures than other portions. If National Grid can determine that the high readings are coming from a portion of the candidate system with a

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#### **<sup>1</sup> Governing Quadratic Equations for Sampling Protocol in Table 1**

For applications where the system is assumed - based on the results of the review described in Sections 3.1 through 3.3 - to be contaminated above a specified level:

$$Y = 289 + 171.5x - 4.25x^2$$

Where:

Y = the number of samples collected and

X = the number of sample results at or below the specified action level necessary to consider the system non-contaminated

different pressure than other portions of the system, the two (or more) portions of the system will be characterized separately.

**3.5.2 Delineation of subsystems based on material of construction:**

Certain portions of the candidate system may be constructed from different materials from other portions. National Grid's pipeline system utilizes steel, cast iron and plastic pipe. If National Grid can determine that the high readings are coming from a portion of the candidate system constructed from a different material than other portions of the system, the two (or more) portions of the system will be characterized separately.

**3.5.3 Contamination relative to pressure reduction facilities:**

Certain portions of the candidate system may contain pressure reduction facilities such as HP/LP connections or regulator stations. If National Grid can determine that the high (or low) readings are coming from a portion of the candidate system associated with a pressure reduction facility, the two (or more) portions of the system will be characterized separately.

**3.5.4 Contamination relative to any historical liquid collection facilities:**

Certain portions of the candidate system may contain historical liquid collection facilities. If National Grid can determine that the high (or low) readings are coming from a portion of the candidate system associated with a historical liquid collection facility, the two (or more) portions of the system will be characterized separately.

**3.5.5 Water from low pressure systems:**

Certain portions of the candidate system may allow water to infiltrate into low-pressure cast-iron pipe. If National Grid can determine that the high (or low) readings are coming from such a portion of the candidate system, the two (or more) portions of the system will be characterized separately.

**3.5.6 Components not in contact with the flowing gas stream:**

Certain portions of the candidate system may contain components not in contact with the flowing gas stream. If National Grid can determine that the high (or low) readings are coming from a portion of the candidate system associated with such components, the two (or more) portions of the system will be characterized separately.



### **3.6 Approving the Characterization**

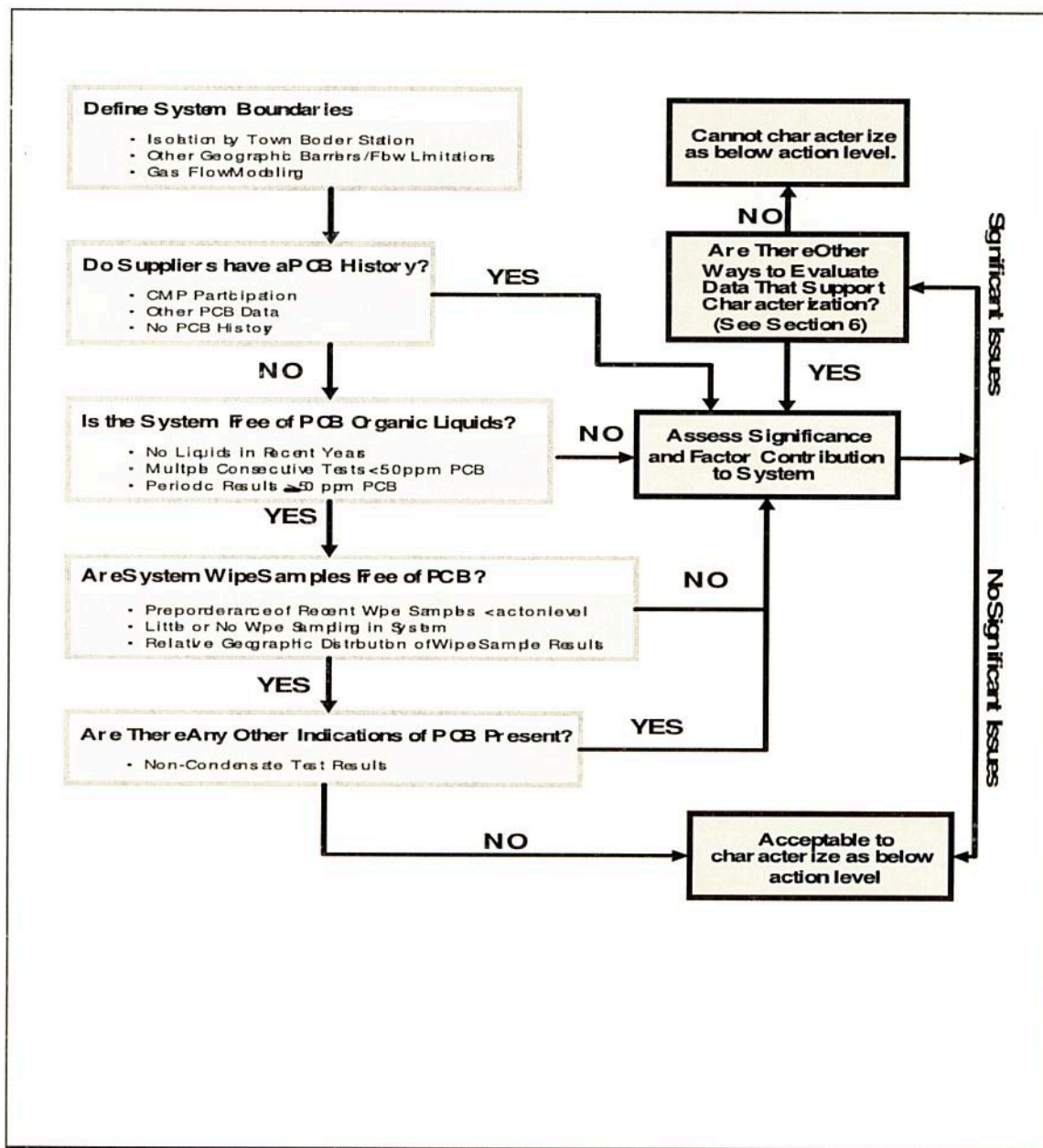
Where the preponderance of information indicates there is reasonable assurance the natural gas piping system meets the criteria, the system or portion of the system may be characterized.

**3.6.1** The individual(s) conducting a characterization will assemble the completed Attachments (2 through 6).

**3.6.2** The Gas System PCB Characterization committee will perform a technical review the collected characterization support data and the results of the characterization.

**3.6.3** The completed characterization documentation will be presented to the appropriate environmental Director and appropriate director of Gas Network Strategy for review and approval.

# Attachment 1 PCB Characterization Evaluation Decision Flowchart





### Attachment 3 PCB Source Identification

List filter separators and scrubbers operating in or at an entry point(s) in the system. Include the last five years of PCB liquid samples for each item. Indicate if / when the item was cleaned or replaced.

Item		Address	
------	--	---------	--

PCB Test Results for the Past Five Years					
Year					
Concentration					

Date of last cleaning or replacement	
--------------------------------------	--

Additional comments or observations (enter "None" in none apply.)

Use multiple copies of this attachment for all equipment within the system under review.

## Attachment 2 PCB System Characterization Evaluation

<b>Prepared by:</b>		<b>Date:</b>	
---------------------	--	--------------	--

<b>Operating Division / Geographic Area</b>	
---	--

**System Delineation:** Describe the system or portion of system proposed for characterization.

<b>System Name (if any):</b>	
------------------------------	--

Geographic Boundaries: (towns, street names, etc.)	
North	
East	
South	
West	
Other Boundary	

Support Information: (such as history flow patterns, gas flow modeling results, etc. where available)



### Attachment 4 Gas Supplier Information

List gas suppliers serving the system. Include information about their PCB history, if any. Confirm published information with supplier or the United States Environmental Protection Agency (EPA). Document any communication with the supplier on a separate sheet, including contact and date.

Supplier		Custody Transfer Point	
----------	--	------------------------------	--

Compliance Monitoring Program (CMP)		Yes	No
CMP Exit Point			

Item		Address	
------	--	---------	--

PCB Test Results for the Past Five Years					
Year					
Concentration					

Date of last cleaning or replacement	
--------------------------------------	--

Additional comments or observations (enter "None" in none apply.)

Use multiple copies of this attachment for all suppliers to the system under review.

**Attachment 5**  
**Organic Liquid Sample Test Results**

List chronologically any organic liquid (pipeline condensate) PCB sample test results obtained within the last five years (enter "None" if none apply). Alternate reports from sample summary systems are acceptable.

Sample Date	Sample Location	Test Results (mg/kg or ppm)	Sample ID	Comments

<b>Additional Comments of Observations (enter "None" if none apply)</b>

Use multiple copies of this attachment, as required.



### Attachment 6 Wipe Sample Test Results

List chronologically any PCB wipe sample test results obtained within the last five years (enter "None" if none apply). Alternate reports from sample summary systems are acceptable.

Sample Date	Sample Location	Test Results (ug/100 cm <sup>2</sup> )	Sample ID	Comments

<b>Additional Comments of Observations (enter "None" if none apply)</b>

Use multiple copies of this attachment, as required.

**Attachment 7**  
**System Characterization and Approval**

<b>System Name (if any):</b>	
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<b>Operating Division / Geographic Area</b>	
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YES	NO	Characterization Category
		Non-PCB
		PCB-Contaminated
		Insufficient Information

DATE	REVIEW / APPROVAL	SIGNATURE
	Gas System PCB Characterization Committee	
	Director, Environmental	
	Director, Gas Network Strategy	



## Attachment 8



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

APR 20 2006

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

William J. Holzhauer  
Law Department  
300 Erie Boulevard West  
Syracuse, NY 13202

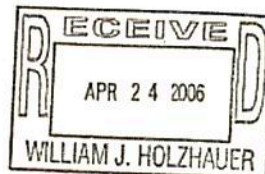
Dear Mr. Holzhauer:

This letter is in response to your letter dated March 22, 2006, in which you request modification to the sampling and analysis requirements of 40 CFR 761.30(i)(1)(iii)(A). You request the use of a wipe sampling method where organic liquids are not available to characterize your natural gas pipeline system.

40 CFR 761.30(i)(1)(D) allows the Director, National Program Chemicals Division, to modify the requirements of 40 CFR 761.30(i)(1)(iii)(A), based on a finding of no unreasonable risk. These requirements may be modified based on the natural gas pipeline system size, configuration, and current operating conditions, among other things.

You indicate that your natural gas pipeline system is often dry (i.e., does not contain organic liquids for testing). You also indicate that you routinely excavate and open the pipelines as part of your day-to-day operations and maintenance.

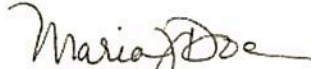
Based on the information provided in your letter, I hereby grant you a modification of 40 CFR 761.30(i)(1)(iii)(A)(5) to allow the use of a wipe sampling method, in accordance with 40 CFR 761.123 and Subpart M, to sample your natural gas pipeline system, when no organic liquids are present. If organic liquids are present, you must use those liquids to characterize your system instead of a wipe sample. The use of a wipe sample to characterize your system, in the absence of organic liquids, does not pose an unreasonable risk to human health and the environment.



Internet Address (URL) • <http://www.epa.gov>  
Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

We appreciate your vigilance in characterizing your natural gas pipeline system.  
If you have any further questions, please contact Sara McGurk at (202) 566-0480.

Sincerely,

A handwritten signature in cursive script, appearing to read "Maria J. Doa".

Maria J. Doa, Ph.D.  
Director  
National Program Chemicals Division